

A Green Endeavor; The Role of Bryant University's Faculty on an Environmentally Responsible Campus

The Honors Program
Senior Capstone Project
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April, 2009

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ABSTRACT

This thesis researches and analyzes Bryant University faculty practices and motivations with regards to consumption and recycling paper. The project incorporated survey instrumentation to gather quantitative data on which to base conclusions. In addition, paper usage was directly observed, along with analysis of faculty feedback to an online survey. A marketing campaign addressed faculty practices and encouraged faculty reduction of paper. Results show that paper recycling in the targeted faculty suite increased slightly in the short-term following the marketing campaign, either through heightened awareness or seasonal office disposal; however, measurement over a greater span of time with sustained marketing might produce a more reliable trend. Recommendations that are derived from this research will help the University to implement more efficient recycling policies and thereby reduce administrative operating costs and create a greener campus.

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INTRODUCTION

The purpose of this project is to reduce campus paper waste, and increase recycling, as well as to provide recommendations for changing faculty attitudes and practices, and thereby reducing campus operating costs and creating a greener campus.

The specific consideration of faculty on Bryant University's campus is such that although the grounds serve as an academic institution to around 3,000 students, a great deal of waste is generated through the students from their faculty assignments. Materials required for academic performance come at a cost to the facility as well as to the students.

Examination of published literature on paper recycling studies in offices or on campuses forms model practices and strategies for Bryant faculty suites. Besides Bryant, this paper also focuses on the recycling programs implemented at other colleges, especially through faculty and environmental marketing campaigns used at these campuses.

RecycleMania is an intercollegiate recycling competition held each year that awards several prizes for waste reduction practices on university property, including awards to the school with the highest amount of total recyclables and the least amount of trash per capita. Measurements of campus waste and recyclables are submitted weekly, affecting the school ranking against competing colleges. RecycleMania has conducted surveys with schools participating in the past, indicating 80% of schools experienced a noticeable increase in recycling collection during the RecycleMania competition. The organization also offers tools to strategize and promote during the 10 weeks of recycling. RecycleMania shares the secrets or tips from other schools for success, encouraging other schools to run contests, use web sites or email, as well as posting creative signage around campus and have students pledge commitment to recycling (RecycleMania, 2009).

In pursuit of greater recycling efficiency at Bryant University, specifically through reducing or reserving paper usage, the purpose of a faculty marketing campaign is to educate the population of faculty office suites on what can and cannot be recycled in their office environment, dispel rumors or misconceptions, and offer alternatives that professors may use

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by choice in their office or leading by example into use in their classes. Ultimately, by targeting the source of what becomes many volumes of essays and assignments printed on paper, Bryant University may be able to reduce its paper consumption, gain competitive advantage against other schools in the eyes of prospective students, and retain its reputation among technologically-savvy campuses.

Hypotheses tested by this research include:

1. Bryant faculty will reduce campus needs for paper through a change in printing formats and/or electronic document substitution.
2. Bryant faculty paper usage habits will change, with reinforcement of positive perceptions of recycling and conservation.
3. A marketing campaign targeted towards Bryant faculty will have a positive impact on paper recycling on campus.

Bryant University

The current method used to collect trash and recyclables in the Unistrukture building involves using labeled containers as a means of initially separating waste, and then maintenance staff emptying these containers each day. Bryant University supplies each faculty office with one small, blue recycle bin reserved for papers including magazines, printing paper, newspapers, and phone books. Offices also have a small waste bin for non-recyclable waste and trash such as food-soiled materials. Bins of varying styles, but usually with small circular openings are placed at intervals throughout the Unistrukture, with several located at key traffic points within faculty suites. These are meant for bottles and cans, which may be plastic, glass, and aluminum. They must be kept separate from the paper bin in order to be properly divided and sent to be processed (Bryant University, 2009).

If recyclables are correctly separated, which maintenance determines through transparent plastic trash bags or through judgment of paper recycling bin contents whether the entirety of the load consists of acceptable materials, it is then gathered to a large holding cart until it is brought to the lower level of the Unistrukture for pickup. Recycled papers are placed in a

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specific location to await pickup, and items such as phone books reside in their own separate bin. Bottles and cans are kept gathered together, also in proximity to the trash pick-up point.

If recyclables are not correctly separated; for example, if a used paper coffee cup was placed with paper recycling, the load is considered contaminated and then must be included with trash for disposal. Without proper education or knowledge, it is reasonable to believe that the University population will continue their habits and may come to think that their efforts are all in vain, once they see their recycling mixed with regular trash.

Juthe documented the ecological footprint of Bryant University in 2005, in terms of energy consumption and waste, including food requirements and office supplies. Of office supplies, the largest portion consumed consists of the university's use of paper. A year's worth of paper ordered for Bryant University amounts to 8,800,000 sheets of paper, or almost 31 hectares of raw wood material when accounting for the purchase of a 10 percent post consumer recycled content in the paper. This means that each student or faculty member's paper usage is sustained by around 103 square meters per year (Juthe, 2005). This evaluation concluded that among other resources, members of the Bryant community were essentially using less energy than the average North American during the 9 months the university is most active; however, the average North American is also living three to four times beyond the earth's capacity (Juthe, 2005). These benchmarks and divisions can aid Bryant University in a path towards more responsible consumption and waste management.

Bentley University

Bentley University in Waltham, Massachusetts, also has sustainability programs in place. The section of Bentley's website devoted to recycling, specifically for administration, lists that all offices should have individual bins for mixed paper recycling, as collected by custodial staff on Tuesdays and Thursdays, and kitchen areas are equipped with bottle and can recycling bins. The site also lists the materials acceptable for recycling from bottles, cans, and paper, as well as unacceptable items. Bentley's sustainability also features an analysis report of greenhouse gas emissions through commuter travel or the college vehicle fleet, but cites electricity usage as the greatest contributor to emissions (Bentley University, 2009).

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Olin College

Franklin W. Olin College of Engineering in Needham, Massachusetts placed fourth in RecycleMania for the Grand Champion category for partial campus participation during 2008. Following their victory in 2008, Olin set forth new initiatives to involve the campus as a whole in the RecycleMania competition in 2009. The college's sustainability task force aims to reduce paper, recognizing that a "paperless" campus more likely means using "less paper," and that "everyone has to buy in," meaning a significant culture change for the campus in order for the program to work (Mattozo, Olsson, Rae, & Weber, 2008). The paper initiatives for Olin include setting printers to yield double-sided copies, placing recycling bins at each associate's desk, as well as recommendations towards utilizing a virtual "blackboard" to its full potential, in lieu of paper usage for assignments or sharing information.

As part of the campus communication or marketing objectives, Olin outlines several strategies to get the attention of the rest of the campus. The college hopes to support a sustainability website with tips and updates for sustainability on campus, as well as an online newsletter discussing monthly initiatives and developments. Olin will continue participation in RecycleMania, expecting to involve students and faculty earlier in the year with support of signage, advertising during sporting events, and campus-wide emails (Mattozo, Olsson, Rae, & Weber, 2008).

Green Offices

Despite all advances in technology, individuals still have not overcome the need for convenience of paper. Printers are a commodity that everyone should have, and mobile digital devices are much more expensive and at times, cumbersome (Mathieu & Capozzoli, 2002). Obstacles to a paperless office stem from several sources; online Web Forms are not standardized, there is yet no substitute for the easy access to paper, many people believe a person must physically sign a contract to legally complete it, and there is a universal level of comfort with this medium.

UK's HR Magazine poses the question; why isn't employee recycling rewarded much in the same way as sales commissions, or operating under budget? Experts reason that because of cross-functional operations it is also difficult to identify individuals responsible for

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measurable differences (Anonymous, 2008). In some offices, recycling is incentivized with contests or monetary compensation.

For a paperless office, transition to a web-based or computer system is more likely if employees have a secure area to store data. Companies have begun offering document storage service, offering the security and space of a database with the added benefit of no on-site equipment requiring maintenance (Mathieu & Capozzoli, 2002). Bryant University faculty would surely find reassurance in a secured, shared database allowing their grades or student work to be shared simultaneously with campus academic offices, creating greater efficiency with regard to recording grades and bookkeeping.

Paperless Campuses

As technology advances with nonstop momentum, individuals rarely have a need to write a quick note or print copies of a presentation when it is just as easy to send a mobile message or email attachments to colleagues. Electronic connections have allowed for quick communication in lieu of transit lag times. These systems also enable offices to move towards a paperless environment, often saving costs while saving trees.

According to Young (2002), the move towards a “paperless” campus or environment resembles an often unattainable dream. One reason is the overwhelming internal culture already in place that may continue existing printing practices as users are accustomed to their respective reading habits. Instead of restricting or reducing paper usage, the source or printing is merely re-allocated to a different part of the supply stream. If paperwork or forms once used widespread across campus are converted to PDFs and shared online, other users will print the documents rather than the central office source (Young, 2002). Additionally, some studies have shown people are also able to retain 30% more information if they see it on paper as opposed to a computer screen. However, it is hopeful that this statistic will transition to greater retention from computers as more people recognize it as a medium of information transfer (Mathieu & Capozzoli, 2002).

Reaz and Hussain (2007) agree with Young's points, realizing that converting to a paperless campus requires a change in culture. They elaborate on the systems in development for a

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Multimedia University (MMU) in Malaysia, posing the benefits of efficiency and simplicity. MMU implements paperless activities through electronic books, videoconferencing, as well as distance learning. This enables students to complete an entire degree's worth of coursework online, with virtual teachers in a virtual classroom. Students are comfortable putting together various files and presentations for online submission. They also have easy access to resources such as the Internet on and off-campus, and can perform course add/drop activities. Although this Malaysian campus faces challenges to expand architecturally in a coastal urban area located on a steep incline, the institution hopes to leverage the help and strategies of collaborative universities working towards similar goals (Reaz, Hussain, & Khadem, 2007).

Environmental Marketing

Studies in consumer behavior show a correlation between how educated an individual is and their sense of freedom in making choices. If a person makes a choice unaware of the impact or the opportunities, it has low importance as opposed to an informed consumer with great interest in making a decision among a variety of choices. Studies focus on the pressure of a salesperson on consumers while making choices; if faced with increased pressure or restriction of freedom, this is likely to produce a "boomerang" effect and retaliation as the individual resists the restriction or walks away from the choice (Clee & Wicklund, 1980).

Shrum, Lowrey, and McCarty (1994) recognize that the various aspects of consumer behavior, demographics, as well as psychographics will affect willingness to recycle. If a consumer culturally values collectivism over individualism, he or she is more likely to recycle. Individuals may maintain that recycling is too time consuming and may not recycle if they are unaware of available methods, or have little knowledge of how to precisely recycle different materials. Additionally, promotions and lottery-based incentives to introduce or advertise recycling programs often result in tangible improvements; however, behavior is usually temporary and returns to baseline activity once the promotion has ceased.

One study in environmental protection raised the question of whether it is preferable to ban environmentally-harmful products, or to present information to sway a consumer to purchase environmentally friendly products. A ban produces a restriction on freedom, and the

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reactance theory was carried out when consumers forced to switch their usual brand of high-phosphate laundry detergent felt greater resentment, as opposed to shoppers who read an informational card about the dangers of the product, and created a significant shift towards environmentally-beneficial products (Clee & Wicklund, 1980).

Bruvoll and Nyborg (2004) explore the dynamics of governmental campaigns to public citizens for recycling. They recognize that the appeals to the public and social responsibility often come with no monetary or economic incentives, and the typical citizen only cares about "his own access to goods and services...would hardly recycle anyway, campaigns or no campaigns" (Bruvoll & Nyborg, 2004). Therefore, theoretically it would not make sense for a typical person to recycle without incentive, alongside altruists that may have no reason to increase current contributions with the onset of a campaign. Consumers are assumed to recycle to not only contribute or preserve a clean environment, but also are motivated by the desire to retain the semblance of a "responsible person" who ought to conform to norms of responsible behavior (Bruvoll & Nyborg, 2004).

Nonprofit marketing campaigns are helpful to explore as well, as coordination with a low or no budget poses limitations on production of advertising or education and training for the target market. Langlois, Sweeny, and Mazzotta (2005) suggest partnerships with competition may be helpful for a recycling Materials Exchange, which may face difficulty against alternatives to find used goods such as Craigslist and eBay. Information packets bring the services of the nonprofit organization to the attention of government and municipality authorities. Nonprofits are also encouraged to use electronic communication or find creative ways to utilize "guerilla marketing" to get maximum results with minimum resources invested (Sweeny, Langlois, & Mazzotta, 2005).

Essentially, environmental marketing must coordinate with a convenience and ease to recycle for consumers. Much of the motivation to recycle comes from free will. The literature points out many people are solely concerned with their own resources, a sort of self-centered perspective that may prevent them from seeing the bigger picture. Environmental marketing

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on a budget or with nonprofit organizations may find help from partnerships with entities also utilizing means to reuse or find new purpose for old materials.

METHODOLOGY

Paper usage was measured through paper supplies collected in faculty suites and calculation of waste paper generated on Bryant campus. Survey research explored faculty practices, habits, and motivations for on-campus paper use, as well as defined the tone and outcome of the proposed marketing campaign. Insights from this data directed a marketing effort to target Bryant University faculty and encourage their paper conservation. After designing a marketing campaign directed towards faculty, recycling and waste volume was reassessed, to quantify the effectiveness of the marketing campaign.

Faculty Survey

The preliminary questionnaire was designed to survey the attitudes and beliefs of Bryant University faculty towards recycling. The questions measured current faculty recycling practices as well as the willingness to adopt new processes in the classroom and for personal use in faculty suites. The questionnaire also offered open-ended questions to gather further faculty opinion and insight on campus recycling systems. Questions were structured to probe faculty for recycling knowledge or misconceptions, in an attempt to gather and address University concerns. The sample was not random; faculty names and email addresses are filed in a campus directory, and receive targeted approved messages and announcements via faculty distribution list. The survey was located on the internet, and the request to complete it was sent as a faculty email, to approximately 120 members. A remarkable 87 respondents completed the survey, representing more than half of Bryant faculty. (See Appendix A)

Recycling Campaign

The Bryant Faculty Recycling Campaign was a promotional vehicle for recycling education. The preliminary survey shed light on rumors or misconceptions that discouraged the respondents, such as recycling and trash are thrown away in the same container, or everything can be recycled in the blue bins designated for paper. The campaign was launched in hopes of changing current faculty behavior to either increase recycling, or reduce waste altogether.

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To measure any change in faculty behavior, a baseline analysis was conducted to analyze current waste amounts from faculty suites. This occurred for the duration of a month leading up to the start of the marketing campaign on March 18, 2009. At two faculty suites, Suite F, which was the control suite, and Suite B, the test suite, several random samples were recorded in terms of the quantity of bags of recycling collected at the end of the day by maintenance staff. Measurements were in quantity or fractions of trash bags due to the limitation stemming from the lack of weighing instruments located on campus. Also taken into consideration was the combination of recycling and trash from these suite with a nearby suite. Since both test and control suites contribute to combined waste collection, measurements were assumed to track any changes from baseline averages on top of combined amounts. The suites were chosen because they were similar in size in terms of number of faculty potentially recycling in either area, and because their locations in the Unistructure caused them to be in separate areas of the building. This factor protects the control suite from any changes that would apply to the variable suite.

Although both suites had previously received campus-wide emails notifying the population as to the RecycleMania contest occurring over the course of several weeks, in many cases these generic emails are deleted or not retained by the readers. Therefore, the control suite of 24 professors received a plain, non-embellished email (See Appendix B) reminder about RecycleMania and the materials acceptable to recycle, with no description or details of those categories. The test faculty suite of 16 professors received a colorful, embellished email with recycling information and facts.

Colors chosen for the series of faculty-directed print advertisements were meant to deviate from traditional greens that are



Figure 1: Illustration of advertising materials.

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used to align with environmentally-friendly messages. The neon-inspired colors call attention to the copy and graphics. Arial Black was the selected font as it is characteristically bold-faced and easy to read, with clean lines to present a clear message, as well as its compatibility across many old and new Windows operating systems, and web site-friendly, should any graphics be shared, forwarded in email, or implemented beyond their original printed form.

The messages from each advertisement intended to catch the attention of passersby, as well as educate with an unconventional, modern attitude. Rather than using dry facts and statistics to encourage faculty to recycle, the messages aim to resonate with personal memories or situations to which faculty can specifically relate. "Too Bad Those Paper Coffee Cups Are Not Recyclable" refers to any faculty with a daily coffee ritual, using paper cups provided by the dining service. The arrangement of the copy brings greatest emphasis to "Too Bad" and "Are Not," in the largest size, with "Recyclable" stretched across the bottom of the header graphic, contrasting the negative downside or danger of this morning ritual with the unassuming nonchalance usually enjoyed with this routine.

"Months To Live: Now Sentence That Student's Essay to a Second Life" brings urgency to the message with a near-death sentence; "Months To Live." However, the copy offers a "ray of hope" or redemption with the other large phrase, "Second Life." This advertisement fulfills an education purpose by enlightening professors to the standard that student papers or assignments need only be kept up to a few months after the end of a semester, in the event a student wishes to contest a grade. Faculty that are unaware of this limit may be encouraged to clean out an office containing old documents to make space for upcoming assignments or relieve a desk of clutter.

RESULTS

Faculty Survey

The faculty recycling survey administered December 12, 2008, revealed that 80% of respondents, or 60 faculty members would be more likely to recycle if updated on recycling policies at Bryant (See Appendix A). This number of affirmative responses shows a strong

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propensity or willingness of faculty and staff to change their habits, especially if offered updated information on recycling at the University. Please see Appendix A.

The open-ended question was well-received and utilized by many faculty to offer opinions and suggestions for future improvements. The question asks, "What changes would you like to see in the recycling program at Bryant?" The 44 responses showed trends from faculty asking for more explicit information or signage as well as additional bins on campus. Many respondents were under the impression that all their effort to recycle is undone when custodial staff mixes recycled materials with trash in the end.

Recycling Campaign

Measurements for the faculty recycling campaign were measured beginning February 26, 2009 in advance of distribution of promotional materials. Measurements of quantities of bags during random sampling showed average collection of around one bag from the control Suite F and their neighbor H, and average collection of half a bag from the test Suite B and neighbor G.

Promotional email and print posters were distributed and placed on March 18, 2009. Random sampling following this date continued to measure recycling collected at the close of the day. Samples were also collected on varying days during the week, to take into consideration faculty that are present and have scheduled classes every other day. See Figure 2. Increases in baseline measurement, such as the spike in data on April 7, 2009, may have occurred due to one faculty member cleaning out an office, which would not be representative of widespread acceptance and practice of new recycling techniques.

Following the marketing campaign, measurements of bag collections showed a positive increase in the test suite receiving the marketing messages, and a slight decrease in recycling volume from the control suite. Average bags from the test suite increased to around three-fourths of a bag. However, taking outliers into consideration, if the spike is removed from the mean equation, recycling still slightly increased to more than .6 of a bag per day. The mean amount of bags collected from the control suite slightly decreased to almost .9 bags collected each day. Reasons for this decrease may stem from faculty holding onto student work from

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before the week of vacation in March to grade, waiting to clean an office out until the end of the semester, and other reasons. The test suite may have seen increased recycling amounts from faculty paying attention to marketing messaging and separating their waste, members cleaning out offices, or possible effects from awareness of being measured, resulting in more careful behavior.

Figure 2: Number of recycling bags collected at end of day:

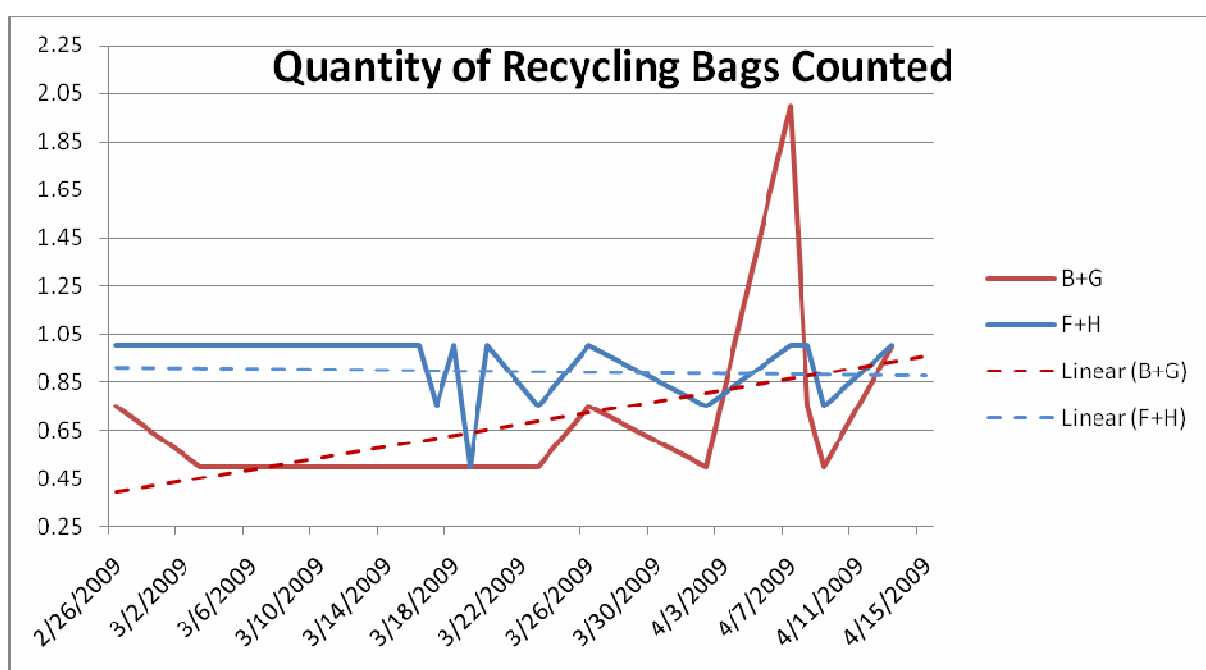


Table 1 includes the data that underlies Figure 2; data recorded in quantity of trashbags.

	2/26	3/3	3/16	3/17	3/18	3/19	3/20	3/23	3/26	4/2	4/7	4/8	4/9	4/13
B+G	0.75	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.75	0.5	2	0.75	0.5	1
F+H	1	1	1	0.75	1	0.5	1	0.75	1	0.75	1	1	0.75	1

DISCUSSION OF RESULTS

Professors may have noticed, on more than one occasion, the efforts of recycling thrown in with trash instead. Maintenance staff are consistent in keeping with recycling policies, that contaminated recycling becomes trash as it cannot be recycled, and those collecting waste are

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not responsible for its proper separation. The marketing campaign supported efforts to educate faculty with factual and objective knowledge rather than hearsay. Communication of the contaminated recycling policy or the archival requirements for student papers were little-known messages for Bryant faculty. Empowered with new and useful knowledge, the administration can apply the messages when they next decide to build syllabi or course requirements in terms of papers necessary to print, as well as how long they decide to hold onto physical copies of student work.

Looking back on the literature, Mathieu & Capozzoli (2002) recognize that the popularity of computers ought to encourage a greater usage of digital media; however, oftentimes the easy access to information and the popularity of printers creates a system where more documents are printed. At Bryant University, each print job is divided by a user coversheet, adding an extra page to each printed document, thereby increasing paper usage campus-wide. Although the purpose of the sheet is to divide jobs according to owner, this policy does not take into account multiple jobs that may have been produced by one owner.

Reaz, Hussain, & Khadem (2007) suggest utilization of a virtual commons where students have the advantage of completing coursework online. Bryant University can leverage the interactive cyber classroom strategies easily, due to the campus-wide wireless network and digital commons currently in place; the wirelessly-equipped laptops distributed to all students; the small campus size does not require substantial changes to the wireless range or architecture, and students as well as faculty are comfortable using the technology and resources available on campus.

The sustainability task force at Olin College agrees that the issue of changing a widespread culture is at the forefront. While many professors have practices using online course documents or syllabi, much of student work is only acceptable in hard-copy, often double-spaced with one-inch margins for the purpose of portability, readability, or written feedback. Students and professors have limited resources when it comes to printing equipment, and cannot print double-sided documents to save paper due to either lacking personnel or equipment parameter limitations. However, many professors can accomplish these goals with

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digital media as well. Software often standard or as a feature of programs with most computer suites includes manipulative functions where faculty may read, comment, edit, and provide feedback to students without printing a single page. The challenge is affecting behavioral change and acceptance in students and faculty.

Aside from direct assignments for printed paper, Young raises the valid point that attempts to create a paperless campus often result in pushing the bulk volume of printing down the supply line. At Bryant University, many students never use a cent of their allotted printing credit. This does not necessarily mean they have the benefit of a paperless or low-impact curriculum; many students bring personal printers to campus for a variety of reasons, and may ultimately purchase more or less paper than the University originally set aside. Individual peripherals such as printers may also generate extra ink cartridges—recyclable materials that may go to waste if students do not have the same knowledge and practices in place in which a trained suite coordinator might be versed. A student with a personal printer may have the advantage of printing double-sided essays, however this does not always mean a professor will accept a double-sided paper. Again, professor willingness to change exists; however, actual change must be encouraged and sustained.

The choice decided for the trajectory of the campaign was to educate faculty and administration of the effect of their efforts. If the faculty, one indirect source of student waste, has knowledge as to why recycling must be separated as well as the difference faculty efforts create, it may have greater impact when faculty make their decisions for waste reduction. This was in opposition to banning paper or restricting paper usage, which would create resentment to the change, according to Clee and Wicklund. Rather, faculty received information in a non-mandatory tone, resulting in positive reception and causing a shift towards positive affirmations and faculty promises to clean offices and adopt additional “green” practices. In future studies, one may observe the overall impact of a paper ban or other materials or practices ban, and whether this has a positive, sustained effect on faculty and then students, or if resentment causes a retaliation against the ban policy. Nevertheless,

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this particular campaign placed emphasis on choices faculty could potentially make out of free will.

One path to catalyze an increase in recycling among faculty or office workers is the allure of incentives. Behavioral studies commonly agree that incentives aid in promoting and rewarding desirable actions, and would be most beneficial in recycling campaigns to raise awareness at their onset. The drawback to incentives is the difficulty to recognize the efforts of a single individual when much of recycling is put towards a collective receptacle. If faculty were required to check in with a suite coordinator for each item recycled, this takes away from the ease and convenience of recycling. Additionally, Shrum, Lowrey, and McCarty recognize that the unfortunate downside of promotions or lotteries is that activity is often temporary and likely to return to baseline level once the campaign ceases or the stimulus is removed. This measurement has not come into effect with the test faculty suite during the month-long length of the experiment, however alternative methods of increasing faculty recycling should be utilized to prevent activity from a plateau.

SUMMARY

With regard to the hypotheses set forth in the opening of this paper, the three statements were confirmed through the positive reception and adoption of faculty in the targeted suite. As determined from the questionnaire, the majority of professors showed willingness or are currently practicing technological or electronic substitution for essay requirements. The supplement of a marketing campaign with new facts for some professors influenced them to change recycling habits for the better, as evidenced through an increase in the trash bag quantity of recycling collected during various days of the week. Once professors viewed ads in the test suite, the messages met positive reception.

With a change in culture, Bryant faculty does have the ability to reduce campus needs for paper, given the opportunity to use equipment with double-sided printing capabilities or pulling feedback from students as to whether they will attend to take a printed exam. Many professors, as evidenced from the survey, wish to accept essays via email or other electronic

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submission service, as well as allow administration of exams and tests on laptops. Paper reduction was not observed during this particular study, but over an extended time period, these changes may result in reduced paper supplies ordering from administrative offices with comparison between semesters or measuring year-over-year spending. However, faculty paper usage habits did change in terms of volume of recycling that increased, measured over the course of several weeks.

The paper recycling volume from faculty incurred a positive impact due to the efforts of a multi-pronged marketing campaign. Although Bryant University had been the target of many "green" initiatives and campaigns promoting awareness in the past, the majority of these projects were student-driven as well as targeted towards students. However, a series of targeted messages identifying with faculty-central concerns and worries was better positioned for affecting recycling behavior. These print and electronic messages, as well as the effect of word-of-mouth aimed to educate and dispel rumors. The effect of the new knowledge was measured in amounts of recycling increased over the baseline averages. The timeline of the campaign as well as the measurement of recycling increased overall, with a positive trend line toward the future, as compared to the control faculty suite.

RECOMMENDATIONS

Overall, faculty maintained a positive, helpful, and receptive attitude to recycling practices. Although they communicated they were eager to help, faculty may not have had time to clean out offices or will not have permission to dispose student essays for some time. Janitorial staff suggested as a semester comes to a close, recycling increases due to faculty cleaning space.

For future studies on the Bryant University campus, on-location tools such as scales or a weighing implement to standardize measurement for university waste or recycling rates. This might yield greater accuracy to recycling records or catch smaller differences between loads. The marketing campaign may have received additional benefit from measuring over an extended period of time to capture all faculty recycling efforts rather than a smaller snapshot

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of their activity. It would be paramount that the University evaluate the cost of not recycling, as it may be spending money where a change in campus practices may result in saving a great sum of money.

Although previous literature remarks on the short-term effects of marketing promotions or contests, it may be advantageous for faculty and Bryant University campus to hold a faculty-targeted campaign with the potential for incentives, either through frequency of recycling, recycling and waste reduction, or through raffle or lottery. This form of campaign would be best for instituting an initial change in overall culture and bringing awareness to faculty. To coincide with faculty participation and culture reform, suite coordinators and student assistants would be integral in terms of receiving recycling-specific training and the authority to administer and record faculty activity and incentives. The commitment and participation of facilities management and janitorial staff would be important to showing faculty specifically where waste and recycling physically transports once it is discarded.

Ultimately, faculty that understand and utilize the greatest knowledge of technology, tips, and tricks for paperless classrooms or building an office-wide reduction in waste should broadcast and set the example by their efforts for other professors to follow as a role model. If faculty habits create an environment where oftentimes paper is still necessary, any attempts to reduce overall paper usage such as printing with smaller margins, or two pages to a sheet, should be accepted and encouraged.

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APPENDICES

A Green Endeavor; The Role of Bryant University's Faculty on an Environmentally-Responsible Campus
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Appendix A – (Faculty Survey Results)

Faculty Recycling Survey		
Do you participate in a recycling program in your town?		
Answer Options	Response Frequency	Response Count
Yes, most of the time	93.0%	80
Yes, occasionally	1.2%	1
Hardly ever	1.2%	1
Not at all	4.7%	4
<i>answered question</i>		86
<i>skipped question</i>		1

Are you familiar with Bryant University's recycling program?		
Answer Options	Response Frequency	Response Count
Yes	64.0%	55
No	36.0%	31
<i>answered question</i>		86
<i>skipped question</i>		1

How would you rate the University's recycling?		
Answer Options	Response Frequency	Response Count
Excellent	5.5%	4
Good	23.3%	17
Okay	42.5%	31
Poor	19.2%	14
Bad	9.6%	7
<i>answered question</i>		73
<i>skipped question</i>		14

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How would you rate your personal recycling in:						
Answer Options	Bad	Poor	Okay	Good	Excellent	Response Count
Faculty Suite	1	6	15	20	26	68
Unistrukture	3	8	21	19	20	71
Library	1	5	21	15	9	51
Dining Room	3	6	24	12	8	53
<i>answered question</i>						75
<i>skipped question</i>						12

How often do you recycle in your faculty suite or office on campus?		
Answer Options	Response Frequency	Response Count
Never	6.5%	5
When it is convenient	5.2%	4
When I think of it	7.8%	6
All the time	80.5%	62
<i>answered question</i>		77
<i>skipped question</i>		10

As far as you know, what items can be placed in the recycling bins on campus?			
Answer Options	Yes	No	Response Count
Aluminum	61	10	71
Plastic	63	11	74
Glass	58	10	68
Paper	75	1	76
Cardboard	60	10	70
<i>answered question</i>			76
<i>skipped question</i>			11

Would you be more likely to recycle if you were updated on the recycling policies at Bryant?		
Answer Options	Response Frequency	Response Count
Yes	80.0%	60
No	20.0%	15
<i>answered question</i>		75
<i>skipped question</i>		12

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What changes would you like to see in the recycling program at Bryant?	
Answer Options	Response Count
	44
I'm familiar with recycling bins on campus in my suite and in the unistruature. I am not familiar beyond that point. I use all the facilities I am surrounded by, but any other policies would be welcomed.	
More ways to recycle and a higher level of importance given to recycling	
more of it.	
The trouble is that after sorting paper from garbage in the faculty offices and suites, all of the material is thrown into the same garbage can by the janitorial staff--defeating the purpose of separating material in the first place. Is there any actual recycling that happens on campus?	
I would like to see more recycling bins in all areas (not just high traffic areas). For example, I have a meeting in the Bryant Center every other week in room 1 and there is no recycling bin in that room therefore all of the plastic from the meetings go into the regular trash - BAD. Also, I would like to see more students get involved, excited and motivated about recycling. Make it a campus-wide campaign because it is all of our responsibilities.	
Better signage on the bins	
A real one that doesn't pretend to be one.	
More bins. I have also heard rumors that the University doesn't really recycle the materials placed in recycling bins. So, perhaps publicizing how much is really being done would help make people aware.	
I know that food waste may not be an element of your survey here but I think there are huge opportunities to improve the amount of food that is thrown away here on campus	
I check my mailbox on my way to campus, and when I arrive to campus, I bring any junkmail or other trash (including empty drink bottles) to dispose of on my way into campus. There are trash bins between the parking lot and campus buildings, but there isn't a place for water bottles or paper trash.	
Students need to recycle more. I have seen them often throwing away soda cans/bottles in the trash	
1. More explicit information posted around campus about what can and can't be recycled. 2. More bins in the library and Bryant center (I sometimes carry bottles and cans back to the unistruature to recycle). 3. Some students and faculty have expressed skepticism that recycling is really happening (i.e., not just being dumped with trash). Any way to reassure them?	
Get rid of all of the plastic in the dining room-- esp Gulski. Teach the staff how to do a scale tare on a salad plate instead of using plastic containers. Use the compostable products that Wholefoods uses for salads. Get rid of those black plastic plates and coffee cups at catered events. Get rid of Styrofoam cups at the Bryant center. Turn the heat down. Offer filtered water on campus so that people can refill drinking bottles. Stop spraying the grass with chemicals. Offer organic food options on campus.	
I have heard rumors in the summer they still put out the recule bins but because we don't collect enough it all goes in the trash. I'd like to see more options and be assured that we do in fact recycle. The plastics in Gulski could be scaled back (not all summer) and have options to recycle paper in Gulski and other cafs. Everyone could be given reusable water bottles.	
we were told it doesn't matter if you put it in the recycle bin we just throw it all in together no time for separating it so we have been doing it in our office for no reason at all	
Each Suite has separated bins. I would like more bins situated around campus.	
My office space has only a blue (recycling) waste basket. It would help to have a second one for non-recyclables.	
One ought not to see the custodians dump both recycling bins into the same trash container.	

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Availability of large dumpster outside.
If there was information printed or pasted on the bins regarding what can and cannot be put into them it would be helpful.
Your question 5 may provide biased responses. My understanding is that only paper is recycled, and based upon conversations with the custodial staff it seems that even what is put into the recycle bins often ends up in the trash container. My understanding may be incorrect, but certainly improved information should be disseminated on: 1) what is recycled in which areas (faculty suites vs. Rotunda, etc.), 2) where to recycle other items, and 3) reassurance that my effort to seek out a recycling bin is rewarded by actually recycling the items deposited.
To my knowledge, at least as of last year, recycling bins were ubiquitous in the faculty suites and the unistructure but custodial staff emptied the contents into general containers with general trash, defeating the purpose. I don't know if this is still the case, but that was very disappointing and I haven't heard of an update since then.
Specifics as to how it should work, and whether or not the cleaning staff is committed to it. Also, you should have allowed some "don't know" options for your earlier questions
Our suite printer prints a cover page for each job. This seems wasteful.
I would like to see uniform bins with proper labeling and top all over campus. If we expect students and faculty to recycle, bins need to be available, publicity needs to go out about them and what is and is not recyclable. What is in the unistructure, Bryant Center, residence halls, library, and gym all need to be the same. If Bryant Recycles, than the campus needs to recycle, not just those who understand we are too cheap to purchase proper bins and can't figure out how to properly market that we recycle. It can't just be student driven, they don't control the funding, faculty and staff does. If the opportunity is there, people will recycle. Make the opportunities available and understandable!
More containers for newspaper.
I see plastic bottles in the trash outside of classrooms in the unistructure...this is very unfortunate since the recycling bins are right there too. This implies to me that need more social pressure among students.
Program needs more PROMOTION!
I am not familiar with any formal recycling program at Bryant.
Visible containers that state: Newspapers/Magazines, Glass only; Cans only, etc throughout the campus. Emphasis on emails of reports, versus papers -University support - across divisions - for use of blackboard for newsletters, reports, etc. Recycle bins in restrooms. Eliminate Styrofoam containers in lunchroom. Charge a fee for paper cups for morning coffee to encourage folks to use personal mugs.
Offer a campus wide competition for "ways to make the Bryant community green". Clubs, organizations, offices, faculty suites could submit list and ways to reach that goal and winners will get some kind of recognition.
The impression is that the university gives the appearance of recycling by providing recycling receptacles but that everything is dumped in the same trash bin at the end. And when you try to recycle you noticed that others have placed mixed items in the containers. Often, I will bring items home where I know they will be truly recycled.
Printer in faculty suites should print double sided
I would like to see the faculty suites cleaned out, books and piles of papers recycled.
Publish the recycle policies in a simple, quick, easy-to-read format. If it is too detailed and wordy, I'm not sure you will get people to read it.
Too many events, such as Discover Bryant and other admissions events don't have available recycling bins.
Separate bins for different types of containers (glass, plastic, aluminum) to increase efficiency--

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otherwise they have to be separated down the line.
Better communication about recycling bins. E.g., when paper gets put in the bottle/can recycling bin, the whole bin gets trashed rather than recycled. WE need to know that.
My students tell me that there is no recycling in the campus dorms, which seems absurd. If that is true, it should absolutely be rectified.
I think reminding students & staff about recycling is a great idea - I'm amazed when I see bottles or cans or paper in the garbage containers (I take them out & put them in the proper recycle bin!). I said I didn't think plastic was recycled at Bryant, but I now remember that it is in bottle form. Great project (yours)!
Seems to work well, but would appreciate a sticker on our faculty suite cans to show what is/isn't recyclable.
I would like to see the University actually recycle instead of dumping the items I sort for recycling into the same bin as garbage. It would be useful if the university also used less plastic materials. (For instance, Galski gives out plastic containers for salads rather than reusable ones and most people use plastic water bottles only once) The University could produce less paper waste, and I know most of my colleagues do not print double-sided (nor do students for that matter).
When the trash bins are picked up in the faculty suites, they are all put together. Hence the paper which I and others carefully separated is put together with other trash. I honestly don't believe how disregarded the policy is. Clearly the maintenance people must become part of the process.
To make it a university-wide initiative to recycle. Bryant is sorely lacking in having a unified recycling program.
the faculty suites need recycling bins next to the copy machines and printers. there's no clear distinction between a trash can or recycling bin

If you have not yet done so, would you be willing to adopt any of the following options to reduce paper use in your classes?

Answer Options	Response Frequency	Response Count
Papers and assignments submitted electronically	38.6%	27
Double-sided printing	61.4%	43
Print with smaller margins	41.4%	29
Online syllabus and handouts	51.4%	36
I already utilize many of these tools for reducing paper	82.9%	58
Other (please specify)	8.6%	6
answered question		70
skipped question		17

Number	Response Date	Other (please specify)
1	12/15/2008 19:41:00	I also print on half and quarter sized sheets of paper
2	12/15/2008 19:51:00	Have students let me know if they will not be taking the (optional) final exam.
3	12/15/2008 20:26:00	no
4	12/15/2008 20:38:00	Allowing students to take notes on laptops
5	12/15/2008 20:41:00	Use of clickers for exams/quizzes
6	12/17/2008 01:56:00	Turn away from hardback books to eBooks

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Appendix B – (Faculty Email Correspondence)

Email #1: Faculty Suite F, Control Suite

From: Justine Boucher

Cc: Lucie Koretsky, Suite Coordinator

Bcc: Faculty Suite F

Subject: RecycleMania in Suite F

Greetings Suite F faculty!

As you may be aware, Bryant University is engaged in RecycleMania, a recycling competition against other colleges. The materials recycled at Bryant University are gathered and weighed, then submitted to the contest.

Recyclable materials include:

- Paper
- Glass
- Aluminum
- Cardboard
- Plastic

You can learn more about RecycleMania [here](#).

Thank you for recycling!

Sincerely,

Justine 

Justine M. Boucher

BRYANT UNIVERSITY
Class of 2009

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Email #2: Faculty Suite B, Test Suite

From: Justine Boucher

Cc: Amy Paul, Suite Coordinator

Bcc: Faculty Suite B

Subject: Worth your weight in...paper! Please read, do not delete!

Attachment: Recycling Guide.PDF



Greetings Suite B Faculty!

Welcome to the RecycleMania countdown! Bryant University is competing against colleges like Babson and Brown to see who can recycle the most.

If paper is kept separate from bottles and cans it WILL ALL be recycled.

However, if paper gets dirty with food like napkins or coffee cups, the whole load will be **contaminated.**

The following materials CAN be recycled at Bryant:

Paper

Newspapers, magazines, student essays, textbooks

Plastic

Soda, juice, or water bottles

Glass

Jars, bottles, containers

Aluminum

Soda Cans

Cardboard

The following are **NOT recyclable: dirty napkins & paper plates, used paper cups, pizza boxes, Styrofoam take-out containers, etc.**

The attached PDF is a handy guide to recycling at Bryant. To learn more about RecycleMania and see the scores of

colleges involved, visit [here](#). With your help, we can beat Babson!

Thank you for recycling!

Justine M. Boucher

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Attachment: See next page.



Greetings Suite B!

**Welcome to the countdown of Recyclemania!
Bryant University is competing against colleges
like Babson and Brown to see who can recycle the
most. If paper is kept separate from bottles and cans
it WILL ALL be recycled.**

**However, if paper is dirty with food like napkins
or coffee cups, the whole load will be contaminated.**

Paper

Newspapers, magazines, student essays

Plastic

Soda, juice, or water bottles

Glass

Jars, bottles, containers

Aluminum

Beverage cans

Cardboard

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Appendix C – (Recycling Marketing Advertisements)

TOO BAD THOSE PAPER COFFEE CUPS ARE NOT RECYCLABLE



Soiled paper goods like dirty napkins, coffee cups, and pizza boxes cannot be processed and contaminate a whole bin of clean recycling. Keep it clean. Toss it out. Get a real mug.

**MONTHS^{*}
TO LIVE:
NOW SENTENCE
THAT STUDENT'S
PAPER TO A
SECOND LIFE**



***Undergrad students can file an academic grievance up until the next mid-semester grades are due. Student papers can then be shredded or recycled.**

DO I NEED TO SEPARATE YOU TWO?



**Yes. Only paper can go in the blue bins, while
cans and bottles must be put in bins separately labelled
for bottles and cans.**

**Don't crumple or fold under the pressure.
It's time for a time-out.**

LOSE THAT WEIGHT & RECYCLE



Shed pounds easy by recycling all those books, magazines, and newspapers that are piling up. Recycling is weighed every week. Recycle to win.

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Appendix D – (Trash Bag Record)

Number of recycling bags collected at end of day:

	2/26/2009	3/3/2009	3/16/2009	3/17/2009	3/18/2009*			
B+G	0.75	0.5	0.5	0.5	0.5			
F+H	1	1	1	0.75	1			
	3/19/2009	3/20/2009	3/23/2009	3/26/2009	4/2/2009	4/7/2009	4/8/2009	4/9/2009
B+G	0.5	0.5	0.5	0.75	0.5	2	0.75	0.5
F+H	0.5	1	0.75	1	0.75	1	1	0.75

* Marketing notifications initiated on 3/18/2009.

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